

WHAT IS CLAIMED IS:

1. An apparatus comprising:
 - a substrate;
 - a pair of signal traces formed on the substrate and spaced from each other; and
 - 5 a filler material on the substrate and between the signal traces, the filler material having a dielectric constant that is higher than a dielectric constant of a material of which the substrate is formed.

2. The apparatus of claim 1, further comprising:
 - 10 a solder mask layer on the signal traces and on the filler material, the dielectric constant of the filler material being higher than a dielectric constant of the solder mask layer.

3. The apparatus of claim 1, wherein the substrate includes a resin in which fibers are embedded, the dielectric constant of the filler material being higher than a dielectric constant of the resin.

- 15 4. The apparatus of claim 1, wherein the signal traces are formed of copper.

5. The apparatus of claim 1, wherein the filler material substantially fills a space between the signal traces.

6. The apparatus of claim 1, wherein the filler material has a height that is substantially equal to a height of the signal traces.

7. The apparatus of claim 1, wherein the filler material has a dielectric constant in excess of 4.
8. A method comprising:
- providing a substrate;
 - 5 forming a pair of signal traces spaced apart from each other on the substrate; and
 - forming a filler material layer on the substrate between the signal traces;
 - wherein the filler material has a dielectric constant that is higher than a dielectric constant of a material of which the substrate is formed.
9. The method of claim 8, further comprising:
- 10 forming a solder mask layer on the signal traces and on the filler material layer;
 - wherein the dielectric constant of the filler material is higher than a dielectric constant of the solder mask.
10. The method of claim 8, wherein the substrate includes a resin in which fibers are embedded, the dielectric constant of the filler material being higher than a dielectric
- 15 constant of the resin.
11. The method of claim 8, wherein the signal traces are formed of copper.
12. The method of claim 8, wherein the filler material layer substantially fills a space between the signal traces.

13. The method of claim 8, wherein the filler material layer has a height that is substantially equal to a height of the signal traces.

14. The method of claim 8, wherein the filler material layer is formed of a material having a dielectric constant in excess of 4.

5 15. A method comprising:

providing a substrate;

forming a filler material layer on the substrate; and

forming a pair of signal traces on the substrate, each of the signal traces being on a respective side of the filler material layer;

10 wherein the filler material has a dielectric constant that is higher than a dielectric constant of a material of which the substrate is formed.

16. The method of claim 15, further comprising:

forming a solder mask layer on the signal traces and on the filler material layer;

15 wherein the dielectric constant of the filler material is higher than a dielectric constant of the solder mask.

17. The method of claim 15, wherein the substrate includes a resin in which fibers are embedded, the dielectric constant of the filler material being higher than a dielectric constant of the resin.

18. The method of claim 15, wherein the signal traces are formed of copper.

19. The method of claim 15, wherein the filler material layer substantially fills a space between the signal traces.
20. The method of claim 15, wherein the filler material layer has a height that is substantially equal to a height of the signal traces.
- 5 21. The method of claim 15, wherein the filler material layer is formed of a material having a dielectric constant in excess of 4.
22. A system comprising:
- a circuit board;
 - a transmit device on the circuit board to transmit a differential signal; and
 - 10 an output port on the circuit board to receive the differential signal;
- wherein the circuit board includes:
- a substrate;
 - a pair of signal traces formed on the substrate to carry the differential signal from the transmit device to the output port; and
 - 15 a filler material on the substrate and between the signal traces, the filler material having a dielectric constant that is higher than a dielectric constant of a material of which the substrate is formed.
23. The system of claim 22, wherein the circuit board further includes a solder mask layer on the signal traces and on the filler material, the dielectric constant of the filler material being higher than a dielectric constant of the solder mask layer.
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24. The system of claim 22, wherein the substrate includes a resin in which fibers are embedded, the dielectric constant of the filler material being higher than a dielectric constant of the resin.

25. The system of claim 22, wherein the signal traces are formed of copper.

5 26. The system of claim 22, wherein the filler material substantially fills a space between the signal traces.

27. The system of claim 22, wherein the filler material has a height that is substantially equal to a height of the signal traces.

10 28. The system of claim 22, wherein the filler material has a dielectric constant in excess of 4.